

Eastern Plating Company

Hazard Communication Training

Conducted by:
JOHN MARSH

AMASIA ENTERPRISES, INC.

2300 OAKMONT ROAD

HAZARD COMMUNICATION (29 CFR 1910.1200) FALLSTON, MARYLAND 21047

(410) 879-1362

RIGHT to KNOW TRAINING

OUTLINE

I. REVIEW OF THE STANDARD

- A) Chemical Manufacturers Responsibilities
- B) Employer Responsibilities
- C) MSDS Basics
- D) Labeling Requirements
- E) Education and Training
- F) Written Hazard Communication and Chemical List - Company Specific

II. PRINCIPLES OF TOXICOLOGY

- A) Toxicity vs. Hazard
- B) What is a Hazardous Chemical
- C) Degree of Hazard
- D) Routes of Entry
- E) Action of Toxic Substances
- F) Body Defense Mechanisms

III. RECOGNITION & EVALUATION of HAZARDS

- A) Types of Air Contaminants
- B) Types of Hazards
- C) Evaluation (Warning Properties and Measuring Exposure)

IV. OCCUPATIONAL HEALTH CONTROL METHODS

- A) Sources
- B) Pathways
- C) Employee - Training, PPE, etc.
- D) Self Protection - Employees Responsibility

V. MATERIAL SAFETY DATA SHEETS (MSDS)

- A) Review of Company Specific MSDS
 - 1. Sulfuric Acid(Battery Acid)

APPROXIMATE LENGTH OF TRAINING SESSION 2.5 HOURS

VIDEOS Utilized: 1. On-Site Right to Know Video

Handouts:

- 1. MSDS's
- 2. AMASIA ENTERPRISES - Introduction to Right To Know and What Is A HAZARD MATERIAL ?

TRAINING COURSE LOG

This form is to be filled out after completion of any scheduled training session or exam.

DATE: _____ (Note: Date will be used as the session number)

LOCATION: _____ INSTRUCTOR: _____

COURSE (CIRCLE ONE):

Anodizer _____	Back End Operator _____	Chemical Handler _____
CPR _____	Digital Camera _____	First Aid _____
Fire Extinguisher _____	Forklift _____	Front End Operator _____
Hardcoater _____	Hazardous Materials _____	Iridite Basics _____
Iridite _____	Masking Basics _____	Micrometers _____
Orientation _____	Policy Manual _____	Preliminary Safety _____
Procedure Writing _____	Quality _____	Racking Basics _____
Right To Know _____	Startup/Shut Down _____	Supervisor _____
Thickness Check _____	Titration Basics _____	Unracking Basics _____
Other _____		

Enter the Employee(s)' Name Below and Circle P for pass and F for Fail:

_____ P/F	_____ P/F	_____ P/F
_____ P/F	_____ P/F	_____ P/F
_____ P/F	_____ P/F	_____ P/F
_____ P/F	_____ P/F	_____ P/F

Instructor Sign Off: _____

WHAT IS A "HAZARDOUS" MATERIAL?

Hazardous materials are substances that have the POTENTIAL to cause injury or illness. However, when these materials are properly controlled and handled they can be used safely.

There are a number of ways to minimize the potential dangers

1. Read and follow the label information on the containers
2. Use available engineering controls - hoods, general and mechanical ventilation, control of dust by wetting-down the materials
3. Use of proper personal protective equipment.
4. Good knowledge of the specific hazards of the material.
5. Knowledge and use of proper handling, storage, processing, and disposal procedures.
6. Knowledge of any possible health effects and first aid procedures.

All of this information is available on the labels and the Material Safety Data Sheets (MSDS).

A material is considered to be hazardous by definition of its FLAMMABILITY (100° or less); COMBUSTIBILITY (flash point of 100°F to 200°F); CORROSIVITY (acid or base/caustic); TOXICITY (damage to body parts or organs thru absorption, inhalation, ingestion ; or REACTIVITY (unstable materials that may release heat, energy under contact with water, specific other chemicals, high temperatures, etc.)

Many hazardous materials are used everyday around the home, for example:

FLAMMABLES: Gasoline; De-Icer; Isopropal Alcohol; Methanol; Gasoline Octane Improvers such as Toluene, Xylene and Paints and Thinners.

COMBUSTIBLES: Fuel Oil, Motor Oils

HALOGENATED SOLVENTS: "Chlorinated Solvents" such as Gumout carburetor cleaner, White-out for correcting typing mistakes, Parts cleaners or degreasers, Spot Removers and dry cleaning chemicals.

ACIDS AND CAUSTICS: Drain cleaners such as sodium hydroxide, potassium hydroxide, sulfuric acid.

TOXICS: Herbicides (weed killers), Insecticides (flea collars, flea sprays)

COMPRESSED GASES: Propane tanks, Oxygen tanks, Welding equipment tanks.

The key to safety is PROPER USE - IN A PROPER AREA (ventilation) WITH THE PROPER SAFETY PROTECTIVE GEAR (goggles, gloves, respirators, aprons, etc.)

ROUTES OF EXPOSURE

AND

EXPOSURE CONTROLS

Chemicals can enter the body by any one or a combination of three routes: Inhalation of dust, mist, fumes or vapors through breathing in areas that do not have proper ventilation controls; Ingestion through contamination of food, improper handwashing, etc.; Absorption through the skin by exposure to chemicals without using proper safety gear required (i.e., impermeable gloves, aprons, etc.)

Exposure controls should include general ventilation, specific mechanical ventilation including work area hoods, venting units (tubes) in work areas, etc.

Eye Protection requires specific types of equipment depending on the particular chemical being used, type of operation, etc. Sparks, harmful rays and hot molten metal are hazards of acetylene burning, cutting and welding. Fumes and splash burns may result in chemical handling. Chipping, grinding machining and spot welding often create sparks and flying particles. Often face shields alone do not provide adequate protection. For maximum safety employees should always check with the firm's safety department.

If there is a high level of noise in the work area steps must be taken for hearing conservation. Symptoms such as a prolonged ringing or other unusual noises after leaving work; trouble hearing the television or speech with normal hearing returning after a few hours off the job are signs of over-exposure to too much noise. These signs should be discussed with the firm's Safety Manager. Ear plugs, ear muffs and/or similar protection may be warranted. Specific training and audiometric testing procedures may need to be implemented.

If mechanical hazards are present hand protection may be required. Cutting, crushing, puncture and "pinch" hazards can be avoided with proper procedures. Gloves can also protect employees from environmental hazards such as heat, cold, chemicals, electrical and rough materials. The proper glove type for the job must be used however, some materials will not give any protection to certain chemicals. In most cases, the Safety Manager should be consulted. Common sense and good practices should be used in all cases. These include:

1. Cleaning your hands

2. Use of approved cleaners
3. Use of proper gloves
4. Following good housekeeping rules
5. Use of barrier creams and skin "fats and oils" creams to help prevent dermatitis
6. Use of boots, heavy aprons and special fabric clothing can also protect skin and limit any absorption.

Ingestion of hazardous materials can be avoided by:

1. Not using chemical containers for food or drink
2. Washing of hands before eating
3. Prohibiting eating and smoking in areas where chemicals are stored or handled
4. Eating only in designated areas
5. Prohibiting storage of food in refrigerators normally used to store chemicals

Protect yourself - become familiar with all the first aid procedures for the chemicals in your area. Report any and all injuries to the Safety Manager.

Inhalation protection may require the use of some form of respirator. This may be needed due to dust particles, mist, fumes or vapors. A respirator can prevent lung and respiratory diseases, cancer and other serious illnesses. Decisions for use of a respirator are based on the following:

1. The exposure limits allowed for the particular contaminant in the area (this information can be found on the MSDS)
2. Scientific measurements of the hazard level in a specific area

If in doubt, wear a respirator. The safety department will be preparing a detailed training, fit testing, basis for selection, etc. to provide a good industrial respirator protection plan. Remember, only a self-contained breathing unit (Air Supply tanks) can be used if the oxygen content is below 19.5 percent by volume, or if the atmosphere is IDLH (Immediately Dangerous To Life and Health). Not everyone can wear a respirator. Individuals with respiratory problems, i.e., asthma, severe allergies or emphysema and circulatory problems such as high blood pressure or heart disorders should notify plant supervisors and should be checked by a physician.

HANDLING CHEMICALS SAFELY

If properly handled any hazardous material (toxic chemicals, flammable liquids, dangerous gases or corrosives) is safe. Proper handling prevents acute or chronic effects.

General rules to prevent accidental exposure include:

1. Know what is being handled
2. Use of personal protective equipment
3. Practice of good personal hygiene measures and good plant housekeeping
4. Knowledge of and obeying all safety rules

The MSDS and container labels carry information for identification of the materials and safety instructions.

Flammable and combustible liquids require the following:

1. Keep each such material separate - never mix without approval of supervisory personnel
2. Use of safety glasses, goggles or gloves plus any other needed protective gear such as respirators, gloves, coveralls, boots, and similar items
3. Use and inspection of safety cans
4. No smoking
5. Careful dispensing - use of electrical bonding and grounding to avoid a static spark

Examples of such materials include gasoline, methyl alcohol, isopropyl alcohol, toluene, xylene, methyl ethyl ketone, many paints, etc.

Compressed gases require basic precautions which include:

1. Strict observance of all company standards and rules
2. Knowledge of the gases used in the work area
3. Secure cylinders kept in an upright position at all times
4. Cylinders located away from fire, sparks and electricity
5. Safety in moving cylinders - no dropping or use of rollers or supports. Use hand trucks with cylinders chained
6. Valve caps in place when storing empty cylinders
7. Work area kept clean
8. Keep oxygen and flammable gases (methane, propane, hydrogen, acetylene) separate

Guidelines for safe compressed gas use include:

1. Make sure label is able to be read

2. Hoses and connections checked
3. Caps securely screwed down
4. Open valves slowly - never force threaded connections, never use a wrench or hammer to open valves with handwheels
5. Never use compressed gas to clean a work area or to dust off clothing
6. Mark empty cylinders with an "MT" and store away from full cylinders
7. Use of proper regulators for the gas type

Acids and Bases are used for etching neutralization and similar work. Common acids include phosphoric, nitric, sulfuric, chromic and hydrochloric. Some common bases "caustics" include sodium hydroxide, potassium hydroxide. Both acids and bases are highly corrosive and will irritate or burn the skin, eyes and respiratory tract if not used properly. The concentration of the solution is extremely important in determining the hazard.

Acids react with caustics to form vapors, heat and sometimes sludge. Some acids can react violently with water (sulfuric acid). Both attack specific metals and can be reactive to many other chemicals.

Contact with these materials can cause dermatitis, burns, bronchitis, pulmonary edema, etc. General guidelines for safe handling include:

1. Proper ventilation in the work area
2. Wearing appropriate protective equipment - rubber gloves, aprons, safety glasses, face shields
3. Use of appropriate respirators if required
4. Immediate clean-up of any spills
5. Storage of materials in separate areas (acids away from bases, solvents and certain other toxics.)
6. ALWAYS ADD ACID TO WATER - NOT WATER TO ACID ... AND DO THIS S-L-O-W-L-Y

SOLVENTS

Safe handling of a solvent requires an understanding of the material. A solvent is any liquid that can dissolve another substance. Solvents are used in industry as thinners and as grease and dirt dissolvers. At home they are used as spot removers, paint thinners, glues, dry cleaning agents, etc.

Organic solvents include two classes: Flammables, such as Acetone, Benzene, Xylene, Methyl Ethyl Ketone, Gasoline, etc. and Halogenated (chlorinated) solvents, carbon tetrachloride, trichlorethylene, perchlorethylene and methylene chloride.

How hazardous a solvent is depends on - How it is used - How toxic it is -
How much vapor is given off - Where it is used - Length of exposure - How
susceptible an individual is to the solvent

Solvents enter the body by inhalation and absorption (skin contact). Many
are very quickly absorbed into the bloodstream and can cause drowsiness,
dizziness, headache and coordination problems. Acute inhalation can irritate
the nose, throat, eyes and lungs. Chronic inhalation may damage the lungs,
blood, liver, kidneys, and even the digestive system. SKIN contact can cause
dermatitis through defatting.

Protection can be maintained by use of:

1. Non-porous gloves
2. Barrier creams
3. Never use a solvent to wash hands, etc.
4. Use of an approved respirator when necessary ... as well as safety
glasses, goggles and/or shields as required

FIRST AID FOR HAZARDOUS MATERIALS

Every second counts! Immediate First Aid will reduce pain, improve chances of recovery and help to prevent complications.

Chemical Burns: Chemical burns usually involve no heat. They are caused by acids, caustics and some other hazardous chemicals, including oxidizing agents.

Severity of chemical burns depends on several factors such as:

- Depth of burned tissue
- Location of burn
- Size of burn
- Chemical involved
- Duration of contact
- Age and physical condition

DO

- 1) Wash area immediately for 15 to 20 minutes
- 2) Remove all contaminated clothing
- 3) Cover burn with sterile dressing
- 4) Get medical help immediately
- 5) Know where safety shower is located

DON'T

- 1) Apply any neutralizing solution
- 2) Apply ointments
- 3) Give depressants or stimulants

For internal chemical burns caused by inhalation or ingestion follow the specific information given on the MSDS and get medical help immediately. Always call the local Poison Control Center and send along a copy of the MSDS to the hospital.

Eye injuries require immediate attention. Flush for at least 15 minutes, cover affected eye and send for emergency treatment.

Watch for complications such as shock and infection. Remember proper knowledge of the material, proper safety equipment and work areas can prevent chemical burns.

Basic First Aid:

Ingestion: See specific MSDS recommendation, contact poison control center, get immediate emergency help

Inhalation: Move person to fresh air, give oxygen or CPR as required, get immediate help

Absorbtion: Remove contaminated clothing, wash with soap and water for 15 minutes, see a doctor. Skin cream may help prevent dermatitus

Eye Contact: Flush for 15 minutes. Get immediate medical help.

Use of all safety gear and emergency equipment requires training. Quick response requires a good working knowledge of how a safety shower/eye wash station works, how to properly use a fire blanket, fire extinguisher, fire hose, etc. Review of the Emergency Response, Evacuation, Spill Control Plan should be completed on a regular basis by all employees.

NEVER TAKE CHANCES:

- 1) Observe all safety procedures
- 2) Know what is being used... Follow information on labels and in the MSDS
- 3) Use personal protective gear
- 4) Keep work area and body clean and free of dust debris, etc.
- 5) Report any potential problem to area supervisor
- 6) Become familiar with all safety emergency response procedures

INTRODUCTION TO "RIGHT-TO-KNOW"

BACKGROUND

Early in 1984, OSHA put in place the Federal Hazard Communication Standard that has come to be known as the "Right-To-Know" law. The law originally affected chemical facilities, as well as most "manufacturers" that used "potentially hazardous chemicals". HOWEVER, IN OCTOBER OF 1985, THE COURTS DECIDED THAT THESE REGULATIONS SHOULD APPLY TO ALL FACILITIES!

Also, almost 40 states have passed (or have pending) their own "Right-To-Know" laws. State legislation has built on the Federal OSHA legislation, and in most cases, the state laws are much more rigorous and require much quicker action than OSHA's regulations.

The definition of "potentially hazardous chemicals" varies in all these laws. Some provide a specific chemical list. Others furnish only a definition of what may be hazardous, leaving it up to the manufacturers and users to determine which chemicals fit into the category. However, in both cases the definitions often extend to the things such as the "toner" used in copiers, cleaning fluids, lubricants and many other common chemicals.

MAJOR REQUIREMENTS

Almost without exception, the requirements in laws and regulations concerning "Right-To-Know" include three major areas:

- o **LOCATING, INVENTORYING, AND TRACKING POTENTIALLY HAZARDOUS CHEMICALS** - information about what chemicals are used, where they are stored and how much is used, all fall into this category. (An ideal use for a computer system).
- o **IDENTIFYING, LABELING AND PROVIDING INFORMATION ABOUT POTENTIALLY HAZARDOUS CHEMICALS** - all chemicals (and areas where chemicals are used) within a facility must be labeled. Labels must show what Health, Fire, and Reactive hazards are associated with each chemical, as well as what Protective Equipment must be used to handle the chemical. In addition, definitive information about the chemical must be provided to

employees, based on the Material Safety Data Sheets (MSDS's), provided by manufacturers (these sheets provide detailed information about the specific chemical).

- o **TRAINING/EDUCATING EMPLOYEES** - employees must be educated about a number of things including:
- employees' rights under the legislation
 - what hazardous chemicals are used by the facility (especially those they may come in contact with)
 - how the chemicals will be labeled and the meanings incorporated into the labeling system
 - the information available, via MSDS or summary sheets about each chemical
 - the general uses, characteristics, protective clothing, accident procedures, etc. associated with the major groups or types of chemicals

These training/education programs must be given periodically to all employees who may be exposed to potentially hazardous chemicals. Also, all new employees or employees who are transferred from one department or area to another must go through these programs before they go to work.

CURRENT STATUS

In most states, these three areas must be addressed under timetables provided for in the legislation itself. Most of the already passed legislation calls for significant action to have been taken by the end of 1985. At the Federal level OSHA regulations now require that all facilities, of any type, have all aspects of their Federal Hazard Communication compliance program in place and functioning.

INTRODUCTION TO THE PROGRAM

STRUCTURE AND ORGANIZATION

- Information in this program is presented in a definite order, so that employees will see the relationships between the various groups of information and can retain them more easily. The sections included in the program are:

- o General "Right-To-Know" Information
- o Chemical Hazard Concepts
- o Chemical Hazard Terms and Language
- o Corrosives and Irritants
- o Toxins and Poisons
- o Flammables and Combustibles
- o Radiation Hazards
- o Carcinogens, Mutagens and Teratogens

Each of the sections on chemical groups covers a number of areas having to do with the chemicals within that group, including:

- o Types of chemicals in the group.
- o Characteristics of the group of chemicals.
- o Typical effects of chemicals in the group.

Other sections in the program cover the important areas of:

- o Personal protective equipment and other protective measures typically taken when working with chemicals.
- o Spillage/leakage/accident procedures.
- o Basic first-aid involving injury caused by chemicals.

OBJECTIVES

This education and training program is designed to present the fundamentals of chemical safety to all employees. Upon completion of the program, employees should:

- o Have an overall understanding of the basis for "Right-To-Know" laws and regulations.
- o Understand the general concepts behind potential hazards presented by chemicals in the workplace.
- o Have a good understanding of the terms and language used in discussing chemical hazards.
- o Recognize the types of chemicals in each chemical group.
- o Have a good knowledge of the characteristics of each group of chemicals.
- o Understand the effects and potential hazards created by chemicals in each group.
- o Know how to obtain and use chemical safety data.
- o Understand what personal protective equipment to use and what other "protective steps" need to be taken when using chemicals in this group.
- o Know how to respond to chemical spill/leak/accident situations.
- o Know some of the rudimentary first aid steps to be taken if anyone is injured using chemicals in each group.

OUTLINE OF MAJOR POINTS IN THE PROGRAM

OUTLINE OF MAJOR PROGRAM POINTS

INTRODUCTION AND OVERVIEW

O PURPOSE OF "RIGHT-TO-KNOW" LAWS

- To inform employees about potential chemical hazards.
- To examine ways to protect employees from such hazards.
- There are an abundance of "potentially hazardous chemicals" as defined by the laws.
- Many "common" chemicals we use daily are considered "potentially hazardous".

O PURPOSE OF THE PROGRAM

- Establish a better understanding of potentially hazardous chemicals in the workplace.
- Examine why they are hazardous.
- Look at how they can be used safely.

O INTENT OF "RIGHT-TO-KNOW" LAWS

- Provide employees with all necessary information about potentially hazardous chemicals.

O LOOKING AT THE MSDS (MATERIAL SAFETY DATA SHEET)

- Sections of information.
- The chemical's uses.
- The chemical's characteristics.
- Potential hazards associated with the chemical.
- First-aid procedures to use in case of accidents involving the chemical.
- Spill and cleanup procedures.
- Personal protective equipment.

O USING A CHEMICAL LABELING SYSTEM

- Helps identify potential hazards.
- Includes chemical name and synonyms.
- Shows health and other hazards.
- Should be placed on all containers of hazardous substances.
- Can be placed on shelving or areas where chemicals are stored.
- Also used on valves and pipelines.

o **EMPLOYEE EDUCATION AND TRAINING IS ALSO A MAJOR "RIGHT-TO-KNOW" REQUIREMENT**

- Focuses on proper use, handling and storage of chemicals.
- Makes employees aware of the chemicals used at their work site.

o **THIS EDUCATION PROGRAM INCLUDES INFORMATION ON A NUMBER OF AREAS**

- Chemical hazards.
- Cautions to be observed when using chemicals.
- Procedures involved in working with different types of chemicals.
- Chemical labeling.
- The importance of the MSDS.

o **IMPORTANT CHEMICAL TERMS**

- Duration of exposure; the time that you are exposed to a chemical hazard.
- Acute effect; one that is caused by a short term exposure and happens suddenly.
- Chronic effect; occurs after a long period of time, usually because of repeated exposure to a hazard.
- Dose; the quantity of chemical hazard that you are exposed to.
- Dose/Response; the relationship between the amount of hazard you are exposed to and the reaction you have as a result of that exposure.
- Routes of Entry; the ways in which substances enter the body (skin contact, inhalation, or swallowing).

o **ONE ROUTE OF ENTRY IS THROUGH THE SKIN**

- State of the chemical (solid, liquid or gas) is important.
- Liquids, oils or "pastes" are most easily absorbed.
- Skin provides a protective barrier.

o **INHALATION IS ALSO COMMON**

- Lungs have no natural barrier.
- Therefore inhalation is extremely dangerous.

o **SWALLOWING IS THE THIRD ROUTE OF ENTRY**

- Occurs with contaminated food.
- Also "hand to mouth" contact.

- o T.L.V. ("THRESHOLD LIMIT VALUE) IS AN IMPORTANT HAZARD INDICATOR
 - Exposures beyond indicated amount increase likelihood of illness.
 - Exposures for longer then specified time increase likelihood of illness.
 - Usually given in "parts per million".
- o IMPORTANT TO REMEMBER THAT INJURY OCCURS ONLY IF EXPOSURE IS OF SUFFICIENT INTENSITY AND DURATION

TOXINS AND POISONS

- o A "TOXIC" SUBSTANCE HAS THE POTENTIAL TO DISRUPT PHYSICAL PROCESSES
 - Breathing
 - Coordination
 - Other bodily functions
- o ALCOHOL THAT WE DRINK IS A COMMON EXAMPLE OF A TOXIC SUBSTANCE
 - Effects the respiratory system
 - Can disrupt kidney functions or messages from the brain.
- o MANY TOXINS ARE NOT POISONS
 - We tend to dismiss toxins, but they are still very dangerous.
- o MANY TOXIC SUBSTANCES CAN BE FOUND AROUND THE HOUSE AND IN THE WORKPLACE
 - Pesticides
 - Cleaners
 - Solvents
 - Gases
 - Polymers
 - Fumes produced when burning, welding or heating metal.
- o A POISON IS A SUBSTANCE WHICH MAY CAUSE SEVERE ILLNESS, OR EVEN DEATH WHEN TAKEN IN SMALL AMOUNTS
 - There are very few actual poisons.
 - Use in the workplace is limited.
- o LIKE MOST CHEMICALS, TOXIC SUBSTANCES CAN BE BENEFICIAL WHEN USED PROPERLY
 - We are all exposed to toxins every day.
 - Most are not harmful since they are in small doses.
 - Both humans and animals can easily handle these doses.

o **TOXINS ARE ONLY DANGEROUS WHEN THEY OVERWHELM OUR NATURAL DEFENSIVE SYSTEMS**

- Too large a dose.
- Too long an exposure.

CORROSIVES AND IRRITANTS

o **CORROSIVES ARE OFTEN FOUND IN THE FORM OF CONCENTRATED ACIDS OR BASES**

- Sulfuric Acid is a corrosive acid.
- Caustic Soda is a corrosive base.

o **THESE AND MANY OTHER CORROSIVE CHEMICALS ARE COMMONLY USED IN MATERIALS WE FIND IN THE WORKPLACE EVERY DAY**

- Dyes and paint products
- Petroleum processing
- Automobile batteries
- Soaps and detergents
- Water treatment

o **BODY CONTACT WITH CORROSIVE SUBSTANCES CAN HAVE POTENTIALLY DAMAGING EFFECTS**

- Skin contact may cause severe burns.
- Eye contact could result in blindness.
- Breathing dust, mist or fumes could cause lung damage.
- Swallowing is rare, but could also cause severe injury.

o **IMMEDIATE FIRST-AID MINIMIZES RESULTS OF EXPOSURE**

- Action must be taken quickly.

o **WHILE CORROSIVES ARE "CONCENTRATED CHEMICALS", IRRITANTS CAN BE DILUTED FORMS OF CHEMICALS**

- Irritants are also often "by-products" generated during combustion of material.

o **LIKE CORROSIVES, IRRITANTS ARE FOUND THROUGHOUT OUR LIVES**

- Nitrogen Dioxide (in the exhaust from engines)
- Ammonia
- Anti-freeze
- Diluted acids
- Degreasers
- Thinners

o **IRRITANTS MOST OFTEN CAUSE INFLAMMATION**

- "Localized" irritation at point of body contact.

- In concentrations much less than cause corrosive effects.
- O BE FAMILIAR WITH CORROSIVE OR IRRITANT CHEMICALS TO GUARD AGAINST BURNS OR INFLAMMATION
 - Those used every day.
 - Those used during equipment maintenance or overhaul.

FLAMMABLES AND COMBUSTIBLES

- O FLAMMABLE AND COMBUSTIBLE CHEMICALS ARE ALSO COMMON TO MOST FACILITIES
 - Gasoline
 - Kerosene
 - Xylene
 - Acetylene
 - Toluene
 - Alcohol
- O THESE CHEMICALS ARE ALSO FOUND IN COMMON PRODUCTS AND SUPPLIES
 - Welding supplies
 - Paints
 - Sealers
- O THERE ARE A NUMBER OF FLAMMABLE GASSES AS WELL
 - Hydrogen
 - Methane
 - Butane
 - Propane
- O MOST FLAMMABLE GASES ARE STORED IN COMPRESSED FORMS AS LIQUIDS
 - Return to gas when released.
 - Release causes rapid expansion, which allows for burning.
- O "FLASHPOINT" DETERMINES WHETHER SOMETHING IS FLAMMABLE OR COMBUSTIBLE
 - Flashpoint equals the temperature at which a chemical produces vapor that will burn.
- O FLAMMABLES GIVE OFF VAPORS AT RELATIVELY LOW TEMPERATURES
 - Gasoline at -45° Fahrenheit
- O COMBUSTIBLES PRODUCE VAPORS AT HIGHER TEMPERATURES
 - Kerosene equals 100° Fahrenheit

- Combustibles must be heated before they will produce vapors that will burn.
 - Provides for much more "control" over burning.
- O SWITCHING A FLAMMABLE (SUCH AS GASOLINE) AND A COMBUSTIBLE (SUCH AS KEROSENE) CAN HAVE DISASTROUS RESULTS
 - O PRINCIPLE HAZARDS ASSOCIATED WITH FLAMMABLES AND COMBUSTIBLES ARE "PHYSICAL"
 - Ignite easily
 - Burn rapidly
 - Explode
 - O FLAMMABLES AND COMBUSTIBLES CAN ALSO POSE OTHER HEALTH HAZARDS
 - Produce toxic vapors
 - O LOOKING AT COMPRESSED GASES IN MORE DETAIL
 - Present fire or explosion hazards.
 - Pressure is a strong physical force.
 - Rupture of a cylinder or valve can create flying projectiles.

RADIATION

- O THE MOST COMMON RADIATION HAZARD IN MANY WORKPLACES IS ULTRAVIOLET RADIATION
 - Created by arcs or torches.
 - Can change the structure of atoms and harm living tissue or organs.
- O ANOTHER RADIATION HAZARD IS "INFRA-RED" RADIATION
 - Given off by heating elements.
 - Primary hazard is heating of body tissue.
 - Nerves in the skin provide warning (pain).
- O EYE AREAS ARE PARTICULARLY VULNERABLE TO RADIATION DAMAGE
 - No pain cells to provide warning.
 - Few blood vessels to "repair" damage.
 - Radiation may create cataracts.
 - "Welders' flash" of intense ultraviolet light can cause blindness.

CARCINOGENS, MUTAGENS AND TERATOGENS

- O SEVERAL FAMILIES OF CHEMICALS HAVE HAZARDS DIFFERENT FROM MOST
 - Ways that they effect the human body.

- Amount of time it takes to detect effects (months, years or longer).
 - These chemicals are called Carcinogens, Mutagens and Teratagens.
- O THESE CHEMICALS AFFECT THE WAY CELL GROWTH OCCURS
- Carcinogens and Mutagens damage the pattern of cell growth.
 - Teratagens cause "damaged" patterns to be passed on to children, resulting in birth defects.
- O ASBESTOS IS A WELL KNOWN CARCINOGEN
- Use for insulation and fireproofing for years.
 - In automotive brake and clutch linings.
 - Breathing asbestos fibers can cause various types of cancer.
- O OTHER CONFIRMED CANCER CAUSING MATERIALS ARE WELL KNOWN TO US
- Vinyl chloride
 - Uranium
 - Chromium
 - Nickel
- O SOME CHEMICALS HAVE NOT SHOWN A "DIRECT LINK" TO CANCER
- Test results in animals causes them to be "suspect".
 - Are called "Suspected Carcinogens".
 - Include formaldehyde, PCVs and carbon tetrachloride.
- O IDENTIFYING THESE HAZARDS IS DONE TWO WAYS
- Studying people who have been exposed.
 - Animal Experiments
- O THE "DOSE" OF THE CHEMICAL WHICH HAS BEEN RECEIVED IS IMPORTANT IN DETERMINING THE HAZARD
- Dose means "exposure".
 - Studies find high exposure to carcinogenic chemicals poses "far greater" risks than lower doses.
- O THESE CHEMICALS ENTER THE BODY IN THE SAME WAY AS OTHER CHEMICALS
- Skin absorption
 - Swallowing
 - Breathing (the most common)

0 FUMES FROM THESE CHEMICALS MOST FREQUENTLY ATTACK SEVERAL ORGANS

- Lungs
- Liver
- Kidney
- Reproductive system

0 MANY FACTORS MAY INFLUENCE THE DEVELOPMENT OF CANCER

- Interrelations of these factors are not completely understood.
- A number things can be done to reduce cancer hazards.

0 SEVERAL MAJOR "CONTRIBUTING FACTORS" ARE NOT WORK RELATED

- Cigarette Smoking (Greatest single cancer hazard.)
- Diet
- Have been shown to greatly increase other cancer hazards.

0 REGULAR CHECK-UPS BY YOUR DOCTOR ARE EXTREMELY IMPORTANT IN EARLY PROBLEM DETECTION

STORAGE AND HANDLING

0 WITH PROPER KNOWLEDGE AND PROTECTION, CHEMICAL HAZARDS ARE GREATLY REDUCED

- Learn what hazardous materials are present.
- Approach them with proper attitude and awareness.

0 LOOK FOR INFORMATION ABOUT THE CHEMICALS ON THE CONTAINER LABEL

- Chemical's characteristics and hazards.
- Personal protective equipment to be used.
- Handling instructions.

0 IF THE LABEL DOESN'T PROVIDE ALL NEEDED INFORMATION, CONSULT MATERIAL SAFETY DATA SHEETS (MSDS)

0 ALWAYS USE PROPER PROTECTIVE EQUIPMENT

- Safety Glasses, Goggles and Face Shields
- Gloves and other Protective Clothing
- Respiratory Protection

0 PROPER VENTILATION IS ALSO EXTREMELY IMPORTANT

0 CARE MUST BE TAKEN WHEN STORING POTENTIALLY HAZARDOUS CHEMICALS

- Provide proper ventilation
- Ensure proper lighting
- Identify all storage locations

- Provide strong and stable shelving (also corrosion resistant)
 - Arrange aisles for safe access
- O SPECIAL STORAGE CONTAINERS SHOULD ALSO BE USED WITH SOME CHEMICALS
- Small quantities of flammable/combustible materials should be stored in UL cans.
 - Containers should be stored in approved flammable material storage cabinets.
 - Store compressed gas in cool, dry, well-ventilated areas (away from heat or ignition).
- O ALWAYS KNOW WHERE FIRE EXTINGUISHERS ARE LOCATED
- Also how to use them.

FIRST-AID

- O MEDICAL PROFESSIONALS ARE THE ULTIMATE SOURCE OF KNOWLEDGE ABOUT CONTACT WITH CHEMICALS
- You should also know as much as possible about any chemical contacted, (can assist medical personnel).
- O ANY EMPLOYEE CAN HELP PREVENT SERIOUS INJURY AND SAVE LIVES WITH PROPER KNOWLEDGE OF CHEMICALS AND HOW TO HANDLE THEM
- Know location of running water (first line of defense).
- O FOR CHEMICAL CONTACT WITH EYES
- Flush with running water for at least 15 minutes.
 - Get proper medical attention.
 - Avoid wearing contact lenses (substances may become trapped).
- O FOR SKIN CONTACT WITH POTENTIALLY HAZARDOUS CHEMICALS
- Remove all contaminated clothing.
 - Wash exposed areas thoroughly with soap and water.
 - Get medical attention.
- O IF SOMEONE BREATHES IN A HAZARDOUS CHEMICAL
- Remove person to fresh air at once.
 - Restore normal breathing.
 - Keep person warm and at rest.
 - Get medical attention.
- O IF HAZARDOUS MATERIALS HAVE BEEN SWALLOWED
- Always consult MSDS first.

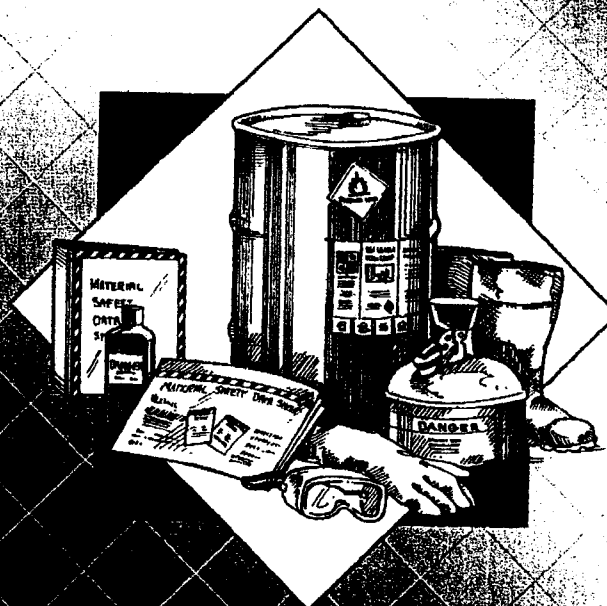
- May need to dilute chemical with water or milk.
 - Or may need to induce vomiting.
- O IF SOMEONE IS BURNED
- Make sure fire is out (smother flames with extinguisher or blanket).
 - Cool person with clear water.
 - Wrap in clean sheets.
 - Keep victim calm.
 - Get medical attention.
- O IN ANY CHEMICAL INCIDENT THE MOST VALUABLE EMPLOYEE IS ONE WHO KNOWS WHAT TO DO
- Know where your "Emergency Plan" is.
 - Know where Material Safety Data Sheets are located.
 - First concern in any incident is health and safety of people.
 - Deal with injuries requiring immediate treatment.
 - Notify proper personnel.
 - Evacuate area if necessary.

CONCLUSION

- O DEALING WITH SPILLS OR LEAKS ARE SPECIAL CONCERNS
- Try and protect the environment.
 - Keep chemicals from flowing into drainage or sewer systems.
 - If spilled materials are flammable or combustible remove sources of heat/ignition.
 - Always protect yourself against contact with spilled substances.
 - Use no tools that create sparks, heat or flames.
 - For liquid spills use absorbent solid to soak up spill.
 - Some chemicals may have to be removed by a licensed disposal company.
- O ALTHOUGH CHEMICALS ARE PART OF OUR EVERYDAY WORLD, THEY CAN PRESENT HAZARDS
- O KNOWING HOW AND WHERE TO FIND CHEMICAL INFORMATION, AND WHAT TO DO IN EVENT OF A PROBLEM WILL HELP EVERYONE WORK WITH CHEMICALS SAFELY

Hazard Communication

Your Safety Net



INTRODUCTION

If you've worked around chemicals and hazardous materials for any length of time, you may know that HazCom is short for OSHA's Hazard Communication Standard. It's your safety net, providing information about the protection you need to work safely with and around chemicals and hazardous materials.

Your employer provides HazCom information and training for your safety. Your part is an ongoing commitment to staying up-to-date on chemical safety at work. Every day, what you need to know changes. New substances, new procedures and new people are added. Maybe you or a co-worker took an action that could have had serious consequences.

That's why hazard communication training is an ongoing process and takes continual commitment. It's the only way you can keep your safety net in place.



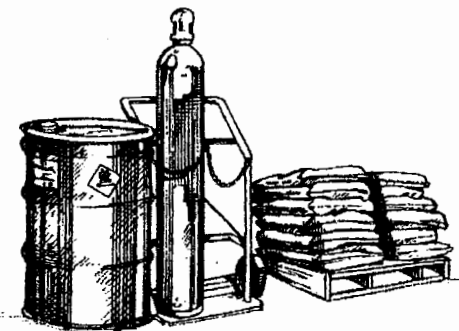
CHEMICAL OVERVIEW

Chemicals can be:

- Solids
- Liquids
- Gases.

Chemicals can be found in:

- Bags
- Drums
- Tanks
- Pressure vessels
- Process systems.



Each chemical has specific properties — ways of acting that make it predictable. To find out a chemical's properties, you check the material safety data sheet, or MSDS. The MSDS provides all kinds of information about the chemical: how it looks, smells, acts and what it can do — to its surroundings, to the environment and to you.

Information about a chemical also is found on the label. The label is a kind of brief MSDS and provides a way to quickly check chemical information during your daily activities.



THE HAZARD COMMUNICATION STANDARD

Because chemicals can be dangerous, OSHA requires everyone who works around chemicals to be trained to recognize and deal with chemical hazards.

Your training includes information about:

- OSHA's Hazard Communication Standard

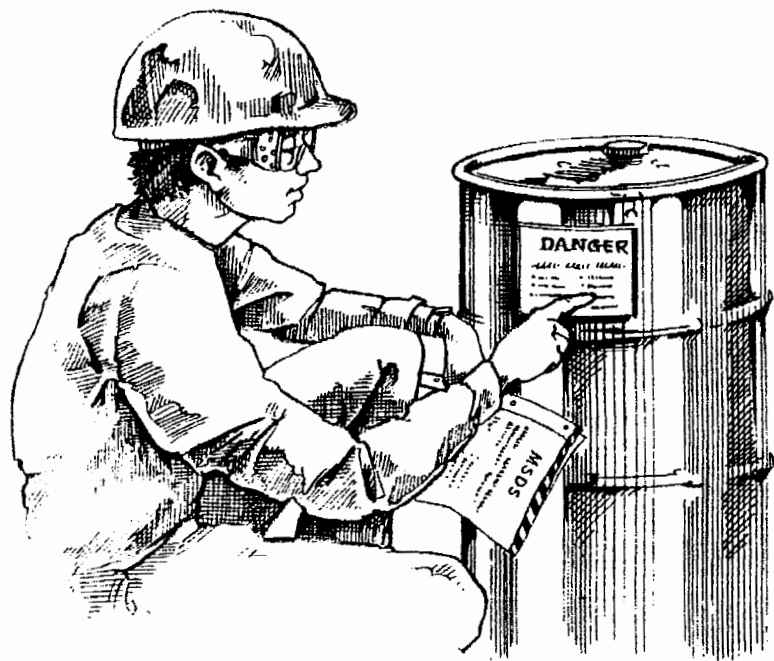
- The list of hazardous chemicals present in your workplace and their hazards

- Your facility's written plan to deal with chemical hazards

- How to use MSDSs and labels

- How you can protect yourself.

You can check an MSDS at any reasonable time. You also can examine the list of hazardous chemicals and the written program for your workplace. If you're not sure where these are located, just ask your supervisor. It's all part of helping you learn everything you can about the chemicals at work — a way to help you take responsibility for practicing chemical safety.

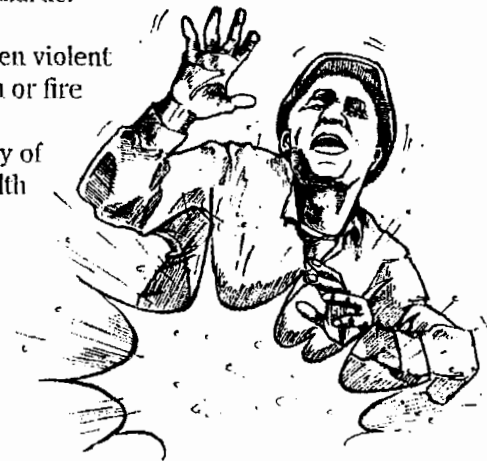


CHEMICAL HAZARDS

Chemicals have two kinds of hazards:

Physical hazards — a sudden violent reaction such as an explosion or fire

Health hazards — the ability of a chemical to affect your health either quickly or over a long period of time.



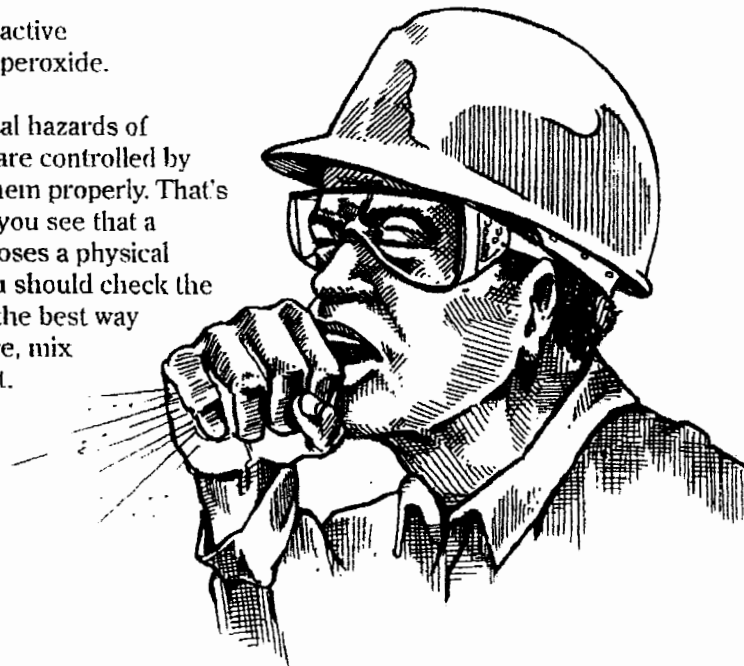
Chemicals that pose a physical hazard are:

- Flammable
- Explosive
- Reactive.

Physical hazards are described by words like:

- Flammable, combustible or explosive
- Oxidizer
- Water-reactive
- Organic peroxide.

The physical hazards of chemicals are controlled by handling them properly. That's why when you see that a chemical poses a physical hazard, you should check the MSDS for the best way to use, store, mix and move it.



HEALTH HAZARDS

A chemical is considered a health hazard if it causes adverse health effects when people are overexposed. Health effects include illnesses, diseases and some kinds of physical harm.



There are two types of health effects:

Acute — Acute health effects occur quickly and harm your body after a single exposure. Acute effects include burning, irritation and immediate damage to your internal organs. Acute health effects can be injuries that heal in time, or can be fatal if the substance is very harmful.

Chronic — Chronic health effects develop over time. Usually they occur after repeated low exposures over a long period of time, but they may show up a long time after a single large exposure to some substances. Examples of chronic health effects are liver disease, cancer and lead poisoning.



TYPES OF HEALTH HAZARDS

Under the hazard communication standard, chemicals in the following groups are health hazards:

Carcinogen — a substance that may cause cancer.

Corrosive — a substance, such as an acid, that destroys or changes your tissues on contact.

Highly Toxic — a substance that can kill you quickly even if your exposure is small and does not last very long.

Toxic — similar to a highly toxic substance, but it takes a larger exposure to kill you.

Irritant — a substance that harms your skin at the site of contact but usually causes no permanent damage.

Sensitizer — a substance that causes an allergic reaction that can get worse with each exposure.

Target Organ Effects — a substance that damages a specific body organ or system such as your liver, kidneys, reproductive system or central nervous system.



The important thing to remember about health effects is that they won't occur if you prevent or control your exposure.

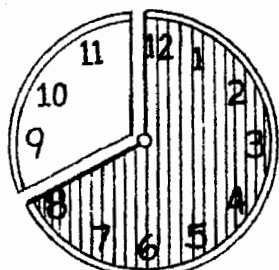
EXPOSURE LIMITS

Exposure limits are set by government and scientific groups and measure how much of a substance you can work around without being overexposed.

Common exposure limits that you will see listed on the MSDS for a substance include:

PEL — the permissible exposure limit that you may not exceed when averaged over an 8-hour work day.

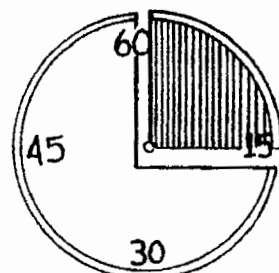
PEL / TLV



8 hours

TLV — the threshold limit value, another name for the amount that you may not exceed when averaged over an 8-hour work day.

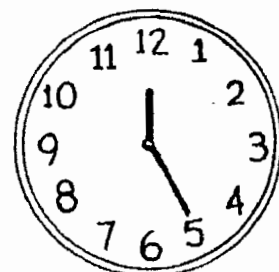
STEL



15 minutes

STEL — the short-term exposure limit, which is the concentration that you can safely be exposed to over a 15-minute period.

IDLH



IDLH — immediately dangerous to life or health, which indicates that a substance is so dangerous that it can kill you very quickly, cause irreversible adverse health effects or prevent you from escaping.

CONTROLLING EXPOSURE

Facilities first try to keep exposure below PELs and TLVs through engineering controls by using good work practices. Examples are using a closed system or special ventilation.

But for some chemicals and some kinds of jobs, you also need to wear personal protective equipment (PPE) to limit your exposure. The kind of equipment you need depends on how the chemical gets into your body. This is called the route of entry (or route of exposure) and is listed on the MSDS. The four major routes of entry are:

- Skin absorption
- Inhalation
- Ingestion
- Injection.

For example, if a substance enters through your skin, you will need to wear PPE that prevents skin contact. If the route of entry is inhalation, you will need to wear a respirator to keep you from breathing the material.



MATERIAL SAFETY DATA SHEETS

Your employer keeps an MSDS for every chemical used in your facility. You may check the MSDS at any reasonable time and should check it often to make sure you stay up-to-date on the latest recommendations.

Each MSDS provides information on:

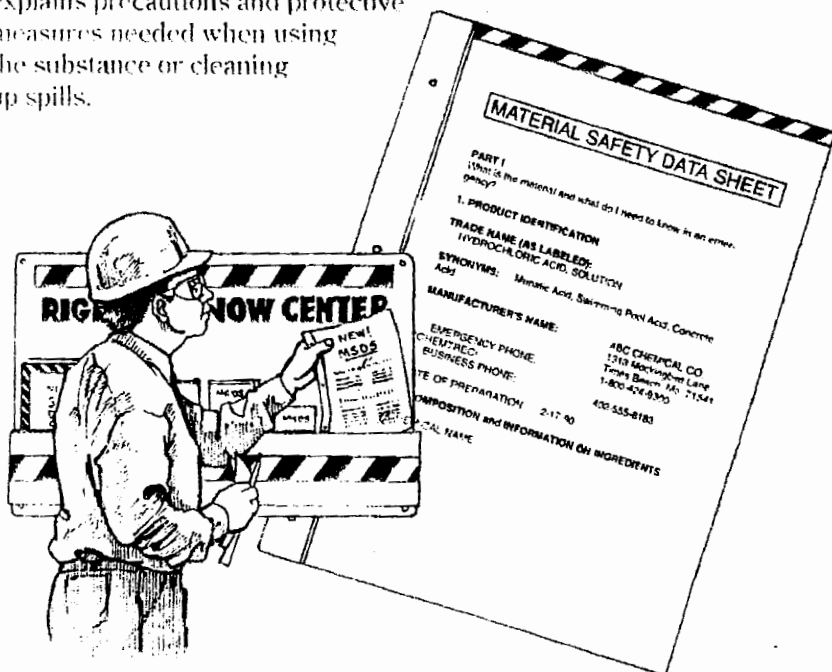
Physical characteristics — the material's smell, color, appearance, flash point and vapor pressure.

Physical hazards — the material's tendency toward sudden violent reaction, explosion or fire.

Health hazards — whether and how a chemical could harm your health, including signs and symptoms of exposure.

Route of entry — how the chemical gets into your body.

Safe handling and use — explains precautions and protective measures needed when using the substance or cleaning up spills.



Control measures — lists suggested engineering controls, work practices and personal protective equipment you must wear when working around the chemical.

Exposure limits — the amount of exposure that is considered to be safe.

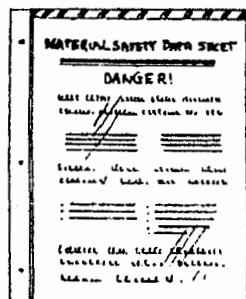
Emergency and first-aid procedures — the proper methods for dealing with a fire, spill or leak, and information on what to do if you are exposed.



ABELS

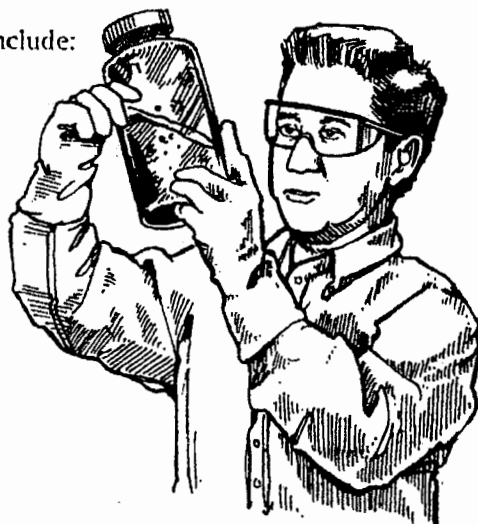
Chemical labels are like a short version of the MSDS and remind you of the hazards of the chemical by using words, pictures or symbols.

The label on a chemical container reminds you to check the MSDS for complete information about the substance. The name used on the label also is used on the MSDS.



With few exceptions, every chemical must be labeled. Never use a chemical that is not labeled.

Some common labeling systems include:
 NFPA diamond labels
 DOT diamond-on-end labels
 Color bar labels.



CHEMICAL SAFETY ON THE JOB

Know hazards of every chemical in your work area.

Know what to do in day-to-day operations and in emergencies.

Assume that every new or unfamiliar chemical is hazardous.

Always wear required personal protective equipment.

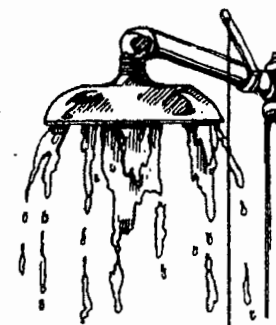
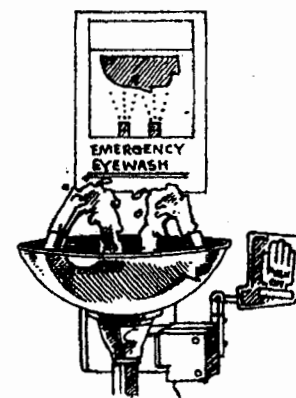
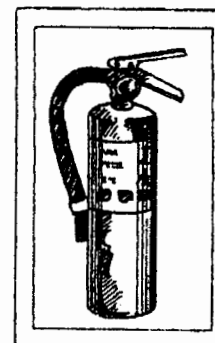
Inspect and clean your protective gear before and after each use, and check the fit and condition of respirators and cartridges every time.

Know the emergency procedures for every chemical you use.

Know the location of emergency showers, eyewash stations, fire extinguishers and exits in every area where you work.

If you notice signs of chemical exposure, summon help, leave the area and tell your supervisor.

Wash your hands and face frequently during the day and be careful not to carry chemicals home on your clothing, hands or hair.



**Hazard Communication Program
for
Eastern Plating Company, Inc.
1200 S. Baylis St.
Baltimore, MD 21224**

Prepared by:
John Marsh
Acting Technical Director
July 5, 2001

TABLE OF CONTENTS

INTRODUCTION.....	1
CHEMICAL INFORMATION LIST	2
MATERIAL SAFETY DATA SHEETS	5
LABELS	8
OUTSIDE CONTRACTORS	11
EMPLOYEE INFORMATION AND TRAINING	12

HAZARD COMMUNICATION PROGRAM

EASTERN PLATING CO., INC.

REVISION: July 5, 2001

1 INTRODUCTION

1.1 Purpose:

The following written hazard communication program has been developed and implemented by:

EASTERN PLATING COMPANY, INC.

1200 S. BAYLIS ST.

BALTIMORE, MD 21224

to comply with the provisions of 29 CFR 1910.1200, and as required by the Maryland Access to Information about Hazardous and Toxic Substances Law, and COMAR 09.12.33

1.2 Scope:

This document describes the actions we have undertaken and policies we have implemented regarding compliance with the above referenced ARight-To-Know@ regulations as they relate to our chemical information list, material safety data sheets, labels and employee information, employee training and notification of outside contractors.

1.3 Responsibility:

The Plant Chemist shall be responsible for the maintenance and revision of this document.

HAZARD COMMUNICATION PROGRAM

EASTERN PLATING CO., INC.

REVISION: July 5, 2001

1.4 Location:

This program is available in the MSDS book in the Main Office and on file in the Main Office and the Lab.

HAZARD COMMUNICATION PROGRAM

EASTERN PLATING CO., INC.

REVISION: July 5, 2001

2 CHEMICAL INFORMATION LIST

2.1 Statutory Requirements:

This section of Eastern Plating Co., Inc.'s Written Hazard Communication Program is intended to satisfy the requirements of Labor & Employment Article, Section 5-405, COMAR 09.12.33 and 29 CFR 1920.1200(e)(1)(I)

2.2 Origination

The Plant Chemist compiled the Chemical Information List.

2.3 Format & Content

In the Presentation of the Report Include the Company Business Address, Contact Person with Title, Telephone, Date of Preparation or Revision and in Tabular Form, List the Chemicals by the following information:

2.3.1 Common Name (Alphabetical Order): The name as it appears on label of the shipping container: drum, bucket, bag, can, bottles, etc.

2.3.2 Chemical Name - List all Hazardous Components

2.3.3 Work Areas - Plant-wide or Lab

2.3.4 Date Added to List

2.4 Availability

2.4.1 Location

The Chemical Information List is available in the MSDS book in

HAZARD COMMUNICATION PROGRAM

EASTERN PLATING CO., INC.

REVISION: July 5, 2001

the Main Office and on file in the Main Office and in the Lab.

2.4.2 Inspection

The Chemical Information List may be inspected by employees at any reasonable time during the course of normal business hours.

2.4.3 Copies

Copies of the Chemical Information List are available within eight working hours of the request to an employee's supervisor. An employee will be provided a copy or afforded the opportunity to make their own.

2.5 Indoctrination of New Employees

The existence, significance, and location of the Chemical Information List will be covered in the New Employee Orientation.

2.6 Maintenance, Upkeep, Revision, and Re-Submittal

2.6.1 Responsibility

The Chemical Information List will be maintained, updated and revised as specified herein by the Plant Chemist or that individual(s) to whom the responsibility of the duties of Plant Chemist fall.

2.6.2 Frequency

The Chemical Information list will be revised, re-alphabetized, and resubmitted to the Maryland Department of the Environment every two years. This list will be resubmitted on July 1, 2002

HAZARD COMMUNICATION PROGRAM

EASTERN PLATING CO., INC.

REVISION: July 5, 2001

and on the bi-annual anniversary of that date in subsequent years.

2.6.3 Submittal

The completed list shall be forwarded to
Maryland Department of Environment
Technical and Regulatory Services Administration
Computer Modeling & Information Management Program
Community Right-To-Know Section
2500 Broening Highway
Baltimore, MD 21224

2.7 Introductions of Chemicals New to the Facility

2.7.1 Responsibility of Plant Chemist

2.7.1.1 Placement of Initial Order

Upon the placement of the initial order for the procurement of a chemical substances, the Plant Chemist must notify the Procuring Authority that said order is the first and that a Material Safety Data Sheet is to accompany the chemical at the time of delivery to Eastern Plating Co. Inc. All chemicals whether gratis or billed, must be requested through the Procuring Authority and must be ordered via a Purchase Order. The initiation, authorization and/or final approval of this process is the responsibility of the Plant Chemist.

HAZARD COMMUNICATION PROGRAM

EASTERN PLATING CO., INC.

REVISION: July 5, 2001

2.7.1.2 Addition to The Chemical Information List

Upon receipt of a new chemical substance to the facility, the Plant Chemist will make the appropriate modifications to the Chemical Information List, incorporating that new substance on the list. This modification may be made as a handwritten entry to the Chemical Information List located in the MSDS Book with duplicates being kept on file in the Main Office and Lab.

2.7.2 Responsibility of Procuring Authority

When informed by the Plant Chemist that an order for a chemical substance is an initial order, the Procuring Authority shall specifically request in writing from the supplier or manufacturer that the Material Safety Data Sheet is to accompany the chemical at the time of delivery to Eastern Plating Co. Inc. This shall be noted on the Purchase Order.

2.7.3 Responsibility of Receiving Authority

The Receiving Authority shall realize that it has received a chemical new to the facility when it cross-checks and verifies receipt against a copy of the Purchase Order. At this point the Receiving Authority will confirm that a MSDS has been received with or prior to delivery of the chemical substance. If this is not the case, the Receiving Authority shall immediately request such document from the supplier or manufacturer. Receipt of this document should be via electronic facsimile (fax) machine if possible. The Plant Chemist shall be notified of the receipt of the

HAZARD COMMUNICATION PROGRAM

EASTERN PLATING CO., INC.

REVISION: July 5, 2001

chemicals once the Receiving Authority has completed their task.

2.8 Procedure for Incorporating into Chemical Information List

Upon receipt of a new chemical substance to the facility, the Plant Chemist will make the appropriate modifications to the Chemical Information List, incorporating that new substance on the list. This modification may be made as a handwritten entry to the Chemical Information List located in the MSDS Book with duplicates being kept on file in the Main Office and Lab.

2.9 Procedure for Notifying Affected Employees of the Introduction of New Chemical Substances.

Employees affected by the introduction of new chemical substances shall be verbally notified by the Plant Chemist of said fact and shall be also be notified by a posting on the Safety Bulletin Board. Such notices shall be displayed for a minimum of two weeks. The Plant Chemist shall also review the new chemical substance its purpose, area of use and storage, its properties and its hazards at the first plant-wide safety meeting convened following the introduction of the new chemical substance.

3. MATERIAL SAFETY DATA SHEETS (MSDS)

3.1 Statutory Requirements:

This section of Eastern Plating Co., Inc.'s Written Hazard Communication Program is intended to satisfy the requirements 29 CFR

HAZARD COMMUNICATION PROGRAM

EASTERN PLATING CO., INC.

REVISION: July 5, 2001

1920.1200(g)

3.2 Origination

The Material Safety Data Sheets (MSDS) Notebook was initially compiled under the supervision of the Plant Chemist.

3.3 Availability

3.3.1 Location

The Material Safety Data Sheets (MSDS) are available in the MSDS Notebook in the Main Office and on file in the Main Office and in the Lab.

3.3.2 Inspection

Employees may inspect the Material Safety Data Sheets (MSDS) at any reasonable time during the course of normal business hours.

3.3.3 Copies

Copies of the Material Safety Data Sheets (MSDS) are available within eight working hours of the request to an employee=s supervisor, the General Manager or the Plant Chemist. Requests shall be submitted in writing using the *AMSDS Request Form* copies of which are maintained in the MSDS Binder. Management will grant the employee a copy of the MSDS or afford the employee the opportunity to make their own.

3.4 Indoctrination of New Employees

HAZARD COMMUNICATION PROGRAM

EASTERN PLATING CO., INC.

REVISION: July 5, 2001

The New Employee Orientation will address the existence, significance, and location of the Material Safety Data Sheets (MSDS).

3.5 Maintenance, Upkeep, Revision, and Re-Submittal

3.5.1 Responsibility

The Material Safety Data Sheets (MSDS) will be maintained, updated and revised as specified herein by the Plant Chemist or that individual(s) to whom the responsibility of the duties of Plant Chemist fall.

3.5.2 Frequency

The Material Safety Data Sheets (MSDS) will be revised, re-alphabetized by common name, and resubmitted to the Maryland Department of the Environment every two years. This list will be resubmitted on July 1, 2002 and on the biannual anniversary of that date in subsequent years.

3.6 Introductions of Chemicals New to the Facility

3.6.1 Responsibility of Plant Chemist

3.6.1.1 Placement of Initial Order

Upon the placement of the Ainitial order@ for the procurement of a chemical substances, the Plant Chemist must notify the Procuring Authority that said order is the first and that a Material Safety Data Sheet is to accompany or precede the chemical at the time of delivery to Eastern Plating Co. Inc. All chemicals whether gratis or billed, must

HAZARD COMMUNICATION PROGRAM

EASTERN PLATING CO., INC.

REVISION: July 5, 2001

be requested through the Procuring Authority and must be ordered via a Purchase Order. The initiation, authorization and/or final approval of this process is the responsibility of the Plant Chemist.

3.6.1.2 Addition to The Material Safety Data Sheets (MSDS)

Upon receipt of a new chemical substance to the facility, the Plant Chemist will make the appropriate modifications to the Material Safety Data Sheets (MSDS) Notebook, incorporating that new substance=s Material Safety Data Sheets (MSDS) in the MSDS Notebook.

3.6.1.3 Responsibility of Procuring Authority

When informed by the Plant Chemist that an order for a chemical substance is an Ainitial order@, the Procuring Authority shall specifically request in writing from the supplier or manufacturer that the Material Safety Data Sheet is to accompany or precede the chemical at the time of delivery to Eastern Plating Co. Inc. This shall be noted on the Purchase Order.

3.6.2 Responsibility of Receiving Authority

The Receiving Authority shall realize that it has received a chemical new to the facility when it cross-checks and verifies receipt against a copy of the Purchase Order. At this point the Receiving Authority will confirm that a MSDS has been received with or prior to delivery of the chemical substance. If this is not the case, the Receiving Authority shall immediately request such

HAZARD COMMUNICATION PROGRAM

EASTERN PLATING CO., INC.

REVISION: July 5, 2001

document from the supplier or manufacturer. Receipt of this document should be via electronic facsimile (fax) machine if possible. The Plant Chemist shall be notified of the receipt of the chemicals once the Receiving Authority has completed their task.

3.6.3 Procedure for Incorporating Into Material Safety Data Sheets (MSDS) Notebook

Upon receipt of a new chemical substance to the facility, the Plant Chemist will make the appropriate modifications to the Material Safety Data Sheets (MSDS) Notebook, incorporating that new substance=s Material Safety Data Sheets (MSDS) in the MSDS Notebook.

3.6.4 Procedure for Notifying Affected Employees of the Introduction of New Chemical Substances.

Employees affected by the introduction of new chemical substances shall be verbally notified by the Plant Chemist of said fact and shall be also be notified by a posting on the Safety Bulletin Board. Such notices shall be displayed for a minimum of two weeks. The Plant Chemist shall also review the new chemical substance its purpose, area of use and storage, its properties and its hazards at the first plant-wide safety meeting convened following the introduction of the new chemical substance.

4. LABELS

4.1 Statutory Requirements:

This section of Eastern Plating Co., Inc.'s Written Hazard Communication Program is intended to satisfy the requirements 29 CFR 1920.1200(f).

4.2 Incoming Containers

4.2.1 Responsibility

The Plant Chemist is responsible for ensuring that all incoming containers are properly labeled.

4.2.2 Requirements

4.2.2.1 All labels on incoming containers must contain:

4.2.2.1.1 The identity of the container contents

4.2.2.1.2 The manufacturer's name and address

4.2.2.1.3 Specific target organ hazard warning

4.2.2.2 All labels must be:

4.2.2.2.1 Legible

4.2.2.2.2 Written in English

4.2.2.2.3 Prominently displayed on each container

4.3 In-Plant Containers

4.3.1 Responsibility

The Plant Chemist is responsible for ensuring proper labeling of in-plant containers.

4.3.2 Requirements

4.3.2.1 Permanent Containers (Tanks):

4.3.2.1.1 All tanks shall

be identified by Placards and/or Labels which shall collectively include the following information:

4.3.2.1.1.1 Common Name

(Proprietary or Commodity); i.e. DW-560, Sulfuric Acid as it appears on the container from which it originated.

4.3.2.1.1.2 Concentration:

i.e. DW-560 20% by volume, Chromic Acid 10 oz/gal

4.3.2.1.1.3 Operating Temperature Parameters

4.3.2.1.1.4 HIMG Rating for Health, Flammability, Reactivity, and Protective Equipment, if applicable, as it appears on the Container from which it Originated or as determined appropriate by the Plant Chemist.

4.3.2.1.1.5 DOT Hazard Warning: Appropriate Warning Label as it appears on the Container from which it Originated or as determined by the Plant Chemist. This

would include.

4.3.2.1.1.5.1 Corrosive

4.3.2.1.1.5.2 Oxidizer

4.3.2.1.1.5.3 Flammable

4.3.3 Permanent Container (Tanks) Identification System

The Plant Chemist will devise and maintain a system to provide the following:

4.3.3.1 Numeric Identification of Tanks

4.3.3.2 Scaled, Graphic Representation of Chemical Process Area Layout Depicting Process Tanks Identified by Common and Numeric Name.

4.3.3.3 Tabular Index of Tanks which contains the following information:

4.3.3.3.1 Tank Name

4.3.3.3.2 Tank Number

4.3.3.3.3 Tank Size in Gallons

4.3.3.3.4 Chemical Constituents

4.3.3.3.5 Constituent Manufacturer

4.3.3.3.6 Maximum Concentration of Constituents

4.3.3.3.7 Hazardous Components of Chemical Constituents

4.3.3.3.8 Hazardous Components of Chemical Constituents

4.3.3.3.9 Concentrations

4.3.3.3.10 Target Organ Hazard Warning for Chemical Constituents

4.3.3.3.11 HMIG Health Rating of Tank Contents

4.3.3.3.12 DOT Hazard Equivalents of Tank Contents

4.3.2.2 Portable Containers (Buckets, Carboys, Jars, Cans)

4.3.2.2.1 All portable containers which are used for direct transfer of chemicals from one vessel to another are not required to be labeled so long as that transfer is completed immediately without any unattended temporary in-transit storage of the material. If a container is used to store a chemical substance for any period of time in an unattended fashion, suitable labels are to be placed on the containers.

4.3.2.2.2 Labels shall include the following:

4.3.2.2.2.1 Common Name (Proprietary or Commodity); i.e. DW-560, Sulfuric Acid as it appears on the Container from which it Originated.

4.3.2.2.2.2 Concentration; i.e. DW-560 20% by volume, Chromic Acid 10 oz/gal

4.3.2.2.2.3 HIMG Rating for Health, Flammability, Reactivity, and Protective Equipment, if

applicable, as it appears on the Container from which it Originated or as determined appropriate by the Plant Chemist.

4.3.2.2.2.4 DOT Hazard Warning: Appropriate Warning Label as it appears on the Container from which it Originated or as determined by the Plant Chemist. This would include:

4.3.2.2.4.1 Corrosive

4.3.2.2.4.2 Oxidizer

4.3.2.2.4.3 Flammable

5.OUTSIDE CONTRACTORS

5.1 **Responsibility**

The Plant Chemist, Shop Foreman or General Manager are responsible to provide outside contractors with the appropriate information.

5.2 **Notice to Contractors**

Contractors shall be notified of the following items as they pertain to the risk of exposure that the contractor may receive within the scope of his assigned work duties.

5.2.1 Hazardous chemicals to which they may be exposed while in the workplace and their location.

5.2.2 Measures to lessen the possibility of exposure.

5.2.3 Explanation of labels.

5.2.4 Location of MSDS=s for hazardous chemicals.

5.2.5 Procedures to follow if they are exposed:

5.2.5.1 Appropriate Counter-Measures

5.2.5.2 Locations of Eye Washes and Safety Showers

5.2.5.3 Persons to Contact

EMPLOYEE INFORMATION AND TRAINING

6.1 Statutory Requirements:

This section of Eastern Plating Co., Inc.'s Written Hazard Communication Program is intended to satisfy the requirements 29 CFR 1920.1200(h)

6.2 Responsibility

The Plant Chemist is responsible for ensuring that all employees are trained in an adequate and timely manner.

6.3 Instructional Format

6.3.1 Orientation

All new hires will be orientated by the Shop Foreman as to the following:

- 6.3.1.1 Description of the Processes
- 6.3.1.2 Explanation Hazard Communication Standard and Right-to-Know
- 6.3.1.3 Location of Key Areas
 - 6.3.1.3.1 Time Clock & Bulletin Board
 - 6.3.1.3.2 Shipping & Rec.
 - 6.3.1.3.3 Offices
 - 6.3.1.3.4 Rest Rooms
 - 6.3.1.3.5 Masking-Inspection Area
 - 6.3.1.3.6 Racking Area
 - 6.3.1.3.7 Process Area
 - 6.3.1.3.8 Chemical Storage Area
 - 6.3.1.3.9 Mechanical Room
 - 6.3.1.3.10 Lab

6.3.1.4 Explanation of Hazards Associated with Normal Entry Level Tasks

All non-clerical, hourly employees are to be instructed as to the hazards associated with the job tasks specific to the Racking/Masking-Inspection Area. These hazards would include:

- 6.3.1.4.1 Penetration
- 6.3.1.4.2 Racks
- 6.3.1.4.3 Parts
- 6.3.1.4.4 Hand Tools
- 6.3.1.4.5 Chemical
 - 6.3.1.4.5.1 Masking Products and Strippers
 - 6.3.1.4.5.2 Entrapped Chemicals which could be released when blind holes are blown out with compressed air during the drying process.
 - 6.3.1.4.5.3 Splashing from Process Chemical when in that area.
- 6.3.1.4.6 Impact
 - Flying Chips or Particles which could be released when blind holes are blown out with compressed air during

the drying process.

- 6.3.1.4.7 Lifting
- 6.3.1.5 Moving and Leveraging of Parts and Racks
Explanations of Job Classifications in which Hazards Exist
 - 6.3.1.5.1 Racking Masking Inspection
 - 6.3.1.5.2 Process Line Operation
 - 6.3.1.5.3 Chemical Handling on Process Line
- 6.3.1.6 Proper Attire for Safety in the Workplace
 - 6.3.1.6.1 No Open Shoes or Sandals
 - 6.3.1.6.2 No Loose Fitting Clothes or Jewelry which would be prone to snagging or entanglement
 - 6.3.1.6.3 No Dark Glasses that would impair vision
- 6.3.1.7 Personal Protective Equipment
 - 6.3.1.7.1 Gloves: Cotton Gloves
 - 6.3.1.7.2 Back Support: Support Belts will be provided to individuals required to lift objects of 75 lbs or more for men or 50 lbs or more for women.
 - 6.3.1.7.3 Safety Glasses
Eye Protection Policy:
All employees are to be issued safety glasses to be worn in chemical process areas, parts dry-off area, the mechanical and chemical storage room and when using MEK in the masking area.
Employees can exchange their glasses without charge if the old glasses are turned in.

- 6.3.1.8 Accidents
 - 6.3.1.8.1 Report All Accidents to Supervisor
 - 6.3.1.8.2 First Aid
 - 6.3.1.8.2.1 Location Of First Aid Kit
 - 6.3.1.8.2.2 Procedure for Self Administering
 - 6.3.1.8.3 First Aid/First Response Coordinators
 - 6.3.1.8.3.1 What Their Function Is
 - 6.3.1.8.3.2 Who Fills Those Positions
 - 6.3.1.8.3.3 How to Contact Them
 - 6.3.1.8.4 Hospitalization
 - 6.3.1.8.4.1 Situations Requiring Hospitalization
 - 6.3.1.8.4.2 Procedure: Report to First Response Coordinators
- 6.3.1.9 Emergencies
 - 6.3.1.9.1 Instruct on the Location and Contents of the Contingency Plan
 - 6.3.1.9.2 Fires, Chemical Spills or Accidents, Explosions
 - 6.3.1.9.2.1 Evacuate the Building: If an individual is not specifically trained to handle an emergency situation in which that individual is at risk of injury or an hindrance to others reacting to emergency.
 - 6.3.1.9.2.2 Reassembly Area is on the Corner of Baylis and Toone Sts. by the Offices.
- 6.3.2 Post-Probationary Training
 - 6.3.2.1 Purpose: To provide extensive training to employees who will be working in an environment where hazardous conditions may exist. This training will emphasize the Hazard Communication Standard, the employee's ARight-to-Know®, and the Generation, Handling and Storing of Hazardous Waste.
 - 6.3.2.2 Format: Classroom Instruction consisting of approximately four hours of proctored video lessons and text review with quizzes and follow-up discussion. The Plant Chemist shall be responsible for proctoring these training sessions.
 - 6.3.2.3 Course Syllabus:
 - 6.3.2.3.1 Hazard Communication Standard -- ARight to Know® (RTK)
 - 6.3.2.3.1.1 The Right to Know Program and the employer and employee responsibilities
 - 6.3.2.3.1.2 What classifies a substance as hazardous.
 - 6.3.2.3.1.3 Recognition of hazardous materials and how to obtain information on them.
 - 6.3.2.3.1.4 Basic ways to protect oneself from harmful exposure to hazardous materials
 - 6.3.2.3.2 Hazardous Waste - ARCRA®

- 6.3.2.3.2.1 What is hazardous waste?
- 6.3.2.3.2.2 Storage and handling of hazardous waste.
- 6.3.2.4 Training Materials:
 - 6.3.2.4.1 Audio-Visual
 - 6.3.2.4.1.1 ASafety in Metal Finishing@, AmericanElectroplating and Surface Finishing Association, Orlando, FL A video which covers the topic of the various hazardous conditions specific to the Metal Finishing Industry.
 - 6.3.2.4.1.2 AHazardous Materials and Hazardous Waste Management@, On-Site Environmental Services, Inc., Maple Grove, MN
 - 6.3.2.4.1.3 APersonal Protective Equipment@, On-Site Environmental Services, Inc., Maple Grove, MN
 - 6.3.2.4.2 Pamphlets, Booklets, Posters & Handouts
 - 6.3.2.4.2.1 APreparing, Understanding and Using Material Safety Data Sheets@
 - 6.3.2.4.2.2 AHazardous Material Identification Guide Explanation@ Lab Safety Supply, Janesville, WI
- 6.3.3 Line Operator Training
 - 6.3.3.1 Purpose: To provide extensive training to employees who will be working in an environment where hazardous will exist on a regular basis. This training will emphasize Personal Protective Equipment and Hazards in the Metal Finishing Industry.
 - 6.3.3.2 Format: Classroom Instruction consisting of approximately four hours of proctored video lessons and text review with quizzes and follow-up discussion. The Plant Chemist shall be responsible for proctoring these training sessions.
 - 6.3.3.3 Course Syllabus:
 - 6.3.3.3.1 Chemical Hazards as they relate specifically to the metal finishing industry.
 - 6.3.3.3.1.1 Acids
 - Nitric Acid
 - Sulfuric Acid

- 6.3.3.3.1.2 Alkalines
 - Caustic Soda
 - Alkaline Etch
 - Waste Treatment
- 6.3.3.3.1.3 Hexavalent Chrome
- 6.3.3.3.1.4 Fluorides
- 6.3.3.3.1.5 Flammables
- 6.3.3.3.2 *Personal Protective Equipment (PPE)*
 - 6.3.3.3.2.1 Workplace assessment to determine existing and potential hazards that require personal protective equipment.
 - 6.3.3.3.2.2 Basic Hazard Categories
 - 6.3.3.3.2.3 Types of PPE
 - 6.3.3.3.2.4 Proper Choice, Fitting and Care of PPE
- 6.3.3.4 Training Materials:
 - 6.3.3.4.1 Audio-Visual
 - 6.3.3.4.1.1 ASafety in Metal Finishing@, American Electroplating and Surface Finishing Association, Orlando, FL A video which covers the topic of the various hazardous conditions specific to the Metal Finishing Industry.
 - 6.3.3.4.1.2 APersonal Protective Equipment@, On-Site Environmental Services, Inc., Maple Grove, MN
 - 6.3.3.4.2 Pamphlets, Booklets, Posters & Handouts
- 6.3.4 Safety Meetings and Continuing Education and Training

Safety Meetings will be conducted once per month at which time a short, AMini@, (<15 minute) training session will be conducted. As required, longer sessions will be held for the purpose of plant-wide safety training.
- 6.3.5 Demonstration of Proficiency All categories of instruction mentioned above, with the exception of Orientation or AMini@ training sessions will be completed by the administration of a quiz. All employees must have a grade of 70% or better. If not, then the quiz will be re-administered with a tutor present to coach successful completion. An employee who has attained a score of 100% on a quiz without tutoring, shall no longer be required to take that quiz after subsequent training sessions. All quizzes and records of attendance of training sessions shall be maintained with similar safety records by the Plant Chemist and in each employee=s personnel file.
- 6.3.6 Retraining/Review All employees shall be retrained on the information contained herein at a minimum of biannually for Hazard Communications, Right-to-Know and Personal Protective Equipment and annually for Hazardous Waste training.
- 6.3.7 Documentation of Training

The Plant Chemist will be responsible for assuring that all training sessions are recorded and that that record is filed

properly. All records shall contain the following information.

- 6.3.7.1 Names of persons trained
- 6.3.7.2 Date and length of training session
- 6.3.7.3 Who conducted the training
- 6.3.7.4 Type of training
- 6.3.7.5 Outline or lesson plan

EASTERN PLATING COMPANY, INC.
1200 South Baylis St.
Baltimore, MD 21224

EMPLOYEE SAFETY TRAINING
**HAZARDOUS MATERIALS & HAZARDOUS WASTE HANDLING
PROFICIENCY QUIZ**

DATE: _____ **EMPLOYEE NAME:** _____

**TRAINING
ADMINISTRATOR:** _____

CIRCLE THE CORRECT ANSWER FOR EACH OF THE QUESTIONS. THERE IS ONLY ONE CORRECT ANSWER FOR EACH QUESTION.

1. The federal law for worker safety covering the use of chemicals is call the _____
Communication Act.
 - a. Right-to-Know (RTK)
 - b. Hazard
 - c. MSDS
 - d. Federal
2. Employers have the responsibility to provide which of the following for their employees:
 - a. To teach employees how to tell if a hazardous material has been released at work and what to do in the case of an emergency involving hazardous materials.
 - b. To explain material safety data sheets (MSDS) to the employees and to provide copies for their inspection.
 - c. To inform employees as to which materials in the workplace are hazardous and what is the proper method for handling such materials.
 - d. All of the above.
3. If you have any questions regarding hazardous materials, you should
 - a. Read the warning label.
 - b. Ask your supervisor.
 - c. Read the MSDS.
 - d. All of the above.

HAZARDOUS MATERIALS & HAZARDOUS WASTE HANDLING PROFICIENCY QUIZ

4. **Specific and detailed information regarding a hazardous material can be found:**
 - a. **Technical Data Sheet**
 - b. **Material Safety Data Sheet (MSDS)**
 - c. **Container Warning Label**
 - d. **Handbook of Chemistry & Physics**
5. **If a container doesn't have a label, and you are not certain of the contents, you should**
 - a. **Assume that its probably what you think it is and use it.**
 - b. **Take the material safety data sheet (MSDS) you think the material is out of the storage binder and tape it to the drum.**
 - c. **Smell it to determine its odor, then report your findings to your supervisor.**
 - d. **None of the above.**
6. **Labels on hazardous materials containers should:**
 - a. **Give warnings for the kind of material in the container.**
 - b. **Explain the basic effects of exposure.**
 - c. **Provide the manufacturer's name.**
 - d. **List equipment necessary for the proper handling of the material.**
 - e. **All of the above**
7. **Your employer is required to have an MSDS for**
 - a. **Only the chemicals delivered in drums or buckets.**
 - b. **Every hazardous material employees work with.**
 - c. **Any material that is a hazardous waste.**
 - d. **Materials that are too dangerous to be sold to the general public.**
8. **The Material Safety Data Sheet provides the following information:**
 - a. **What actual hazardous chemical compounds are present in the material.**
 - b. **What materials should be used to clean up a spill.**
 - c. **The manufacturer's name.**
 - d. **What the physical state of the material is.**

HAZARDOUS MATERIALS & HAZARDOUS WASTE HANDLING PROFICIENCY QUIZ

- e. All of the above
9. The Material Safety Data Sheet provides the following information:
- a. The chemical assessment numbers are for the compounds present in the material.
 - b. The phone numbers to use to call the EPA if there is a spill.
 - c. The regulations for reducing air emissions from solvents.
 - d. The protective equipment that should be used when handling the material
 - e. All of the above
10. The Material Safety Data Sheet provides the following information:
- a. What the signs and symptoms are for over-exposure.
 - b. The appearance, odor, and specific gravity of the material
 - c. The proper fire extinguishing media.
 - d. What the exposure limits are in TWA.
 - e. All of the above
11. Signs and Symptoms of exposure to a hazardous material can include:
- a. Severe burning of the eyes.
 - b. Irritation and burning of the skin.
 - c. Irritation of the nasal septum and respiratory tract.
 - d. Vomiting.
 - e. All of the above
12. A material that will easily catch fire or explode needs this warning label:
- a. No Smoking
 - b. Flammable
 - c. Store Away From Heat
 - d. Only You Can Prevent Forest Fires
 - e. All of the above
13. A chemical that will become unstable if mixed with air, water, heat or other materials needs this warning label:
- a. Flammable

HAZARDOUS MATERIALS & HAZARDOUS WASTE HANDLING PROFICIENCY QUIZ

- b. **Explosive**
 - c. **Reactive**
 - d. **Really Bad Stuff**
14. A chemical which will cause illness or death after being inhaled needs this warning label:
- a. **Poison**
 - b. **Bad Breath**
 - c. **Toxic**
 - d. **Oxidizer**
 - e. **Corrosive**
15. When mixing hazardous materials you should first read the following:
- a. **The American Industrial Hygienists' Guidebook to determine the threshold and exposure levels of the chemicals involved.**
 - b. **The container label, the MSDS, and the manufacturer's technical data sheet if applicable.**
 - c. **The emergency phone numbers for fire and rescue.**
 - d. **All of the above.**
 - e. **Both "a" and "b" above.**
16. The information on the storage of hazardous materials is:
- a. **Found inside the container.**
 - b. **Found on the product MSDS.**
 - c. **Found on the Hazardous Waste Manifest.**
 - d. **All of the above.**
17. For the storage of flammable materials, the following is true:
- a. **The area for storage is only critical if the container is opened.**
 - b. **No labels are required on containers under 5 gallons.**
 - c. **When transferring from one container to another, always stand on a rubber mat so no sparks are generated.**
 - d. **No hazardous material warning labels are necessary if the material is to be stored for less than one week.**

HAZARDOUS MATERIALS & HAZARDOUS WASTE HANDLING PROFICIENCY QUIZ

e. None of the above.

18. The proper way to dispose of hazardous waste material is to

- a. Place small amounts (under 10 pounds) in empty food containers and then place in the garbage every week until it is all gone.
- b. If it is a flammable liquid, allow it to evaporate.
- c. Have a licensed hazardous waste disposal contractor remove it.
- d. According to the Clean Water Act, it is permissible to dispose of the hazardous waste to the city sewer if it goes through a waste treatment plant and if there is no health hazard to personnel.
- e. "c" and "d" above.
- f. None of the above.

19. Accidental spills of hazardous materials can release vapors which are

- a. Flammable and can be ignited by a spark.
- b. Noxious and will irritate or damage the nasal passages, throat, and lungs.
- c. Irritating to the eyes and skin.
- d. All of the above

20. The Spill Section of the Material Safety Data Sheet provides the following information:

- a. Who to contact if there is a spill.
- b. What kind of personal protective gear should be worn.
- c. What part of the body it will affect.
- d. Who is liable in a court of law.
- e. None of the above

21. To stop or limit a small spill, you should:

- a. Notify your supervisor.
- b. If material is flammable, remove or deactivate any sources of ignition without placing yourself in jeopardy.
- b. Use absorbents.
- c. Flush the area with a water hose.
- d. Neutralize the spill with baking soda.

HAZARDOUS MATERIALS & HAZARDOUS WASTE HANDLING PROFICIENCY QUIZ

- e. Do “a” and “b” above, then read the MSDS to find specific instructions for absorbents, neutralizing agents, use of water for flushing, etc.
22. Large hazardous material spills should be treated in the following manner:
- a. Quickly contain the spill by any means possible. Clean up the material and place it in the trash. Tell only your supervisor: do not cause a panic by alerting other people.
 - b. Follow the Company Contingency Plan and Procedures for handling emergency situations
 - c. Dial 911 as soon as possible. Inform everyone in the building that they should run for their lives.
 - d. Start flushing the area with water so as to dilute it and make it less dangerous.
 - e. None of the above
23. Disposing of Hazardous Waste Material can be accomplished by the following methods:
- a. Quantities of less than 10 pounds for solids or 1 gallon for liquids are not considered “significant quantities” and may be disposed of as solid waste.
 - b. Have a licensed hazardous waste hauler transport it to Canada where no one will ever find it.
 - c. Absorb it in cotton and burn it.
 - d. None of the above.
24. Which of these are the responsibilities for handling hazardous wastes:
- a. Make certain that different hazardous wastes are not mixed together in the same container.
 - b. Wear proper protective equipment when handling a hazardous material.
 - c. Use correct storage containers and make sure that they are properly sealed and labeled
 - d. All of the above.
25. Disposal instructions for hazardous materials can be found:
- a. At the Library of Congress.
 - b. On the product label.
 - c. On the product MSDS.
 - d. In the Grainger Catalog.

HAZARDOUS MATERIALS & HAZARDOUS WASTE HANDLING PROFICIENCY QUIZ

e. On the Learning Channel.

26. Over-exposure to a hazardous material could result in which of the following:

- a. Headache, dizziness, and nausea.
- b. Lung, kidney, or liver disease.
- c. No immediate effect because the chemical manifests itself slowly.
- d. Rashes, sores, and ulcerations on the skin
- e. All of the above

27. The way to prevent accidental exposure to hazardous materials is to:

- a. Know the material being handled.
- b. Use proper protective equipment.
- c. Follow proper hygiene-cleanup procedures.
- d. All of the above.

28. Before using protective equipment, the following inspections should be made.

- a. Proper fit.
- b. Rips, tears, holes.
- c. Damaged or malfunctioning parts.
- d. All of the above

29. The Hazardous Material Identification System (HMIS)

- a. Shows how dangerous a hazard is by numbering 0-4
- b. Uses colors and pictures to show how hazardous a chemical is.
- c. Uses symbols to show how hazardous a chemical is.
- d. All of the above.

30. The abbreviations RTK and MSDS stand for which of the following respectively,

- a. Real-Technical-Knowledge, Mandate Stupid Decisions Series
- b. Right-To-Know, Material Safety Data Sheet
- c. Ruin-The-Kingdom, Made Sure to Destroy Stuff
- d. Really-Tubular-Knights, Making it Safe for Damsels in Stress
- e. All of the above